

GRI Basic Solid Oxide Fuel Cell Research

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Objective: Total system cost , \$600/kW

Phase I (1990-1996)

- Planar single cells, operating at <800 °C

Phase II (1997-2000)

- Reliable, high performance planar stacks, operating at <800 °C
- Tubular SOFC Improvements

Budget

(Thousands of dollars)

1990	\$300
1991	\$300
1992	\$300
1993	\$650
1994	\$650
1995	\$650
1996	\$600
1997	\$1,000
1998	\$1,000
1999	\$1,000
2000	\$1,000

Summary

Reduced-Temperature, Planar SOFCs

- Technically Challenging, Longer-Term Option
- Potential for <\$700/kW Capital Cost
- High Power Density, Small Size
- Good Manufacturability

Tubular SOFCs

- Ready for Commercialization in about 3 Years
- Seal-Less Design, Tolerance to Thermal Stress
- Recent Technical Progress
- Operability in High-Efficiency, Pressurized SOFC/Turbine Cycles